

WECKMAN

Progantti installation instructions

Roofing sheets CE certified

60
WECKMAN
Since 1962

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The structural solutions presented in these instructions are indicative and actual structures may differ from those described here. Any deviating structural solutions must be approved by the structural engineer and contractor, and they must comply with the regulations of the National Building Code of Finland. If these instructions differ from the original installation instructions delivered with products that Weckman supplies as a subcontractor, the product's original instructions must always be followed.

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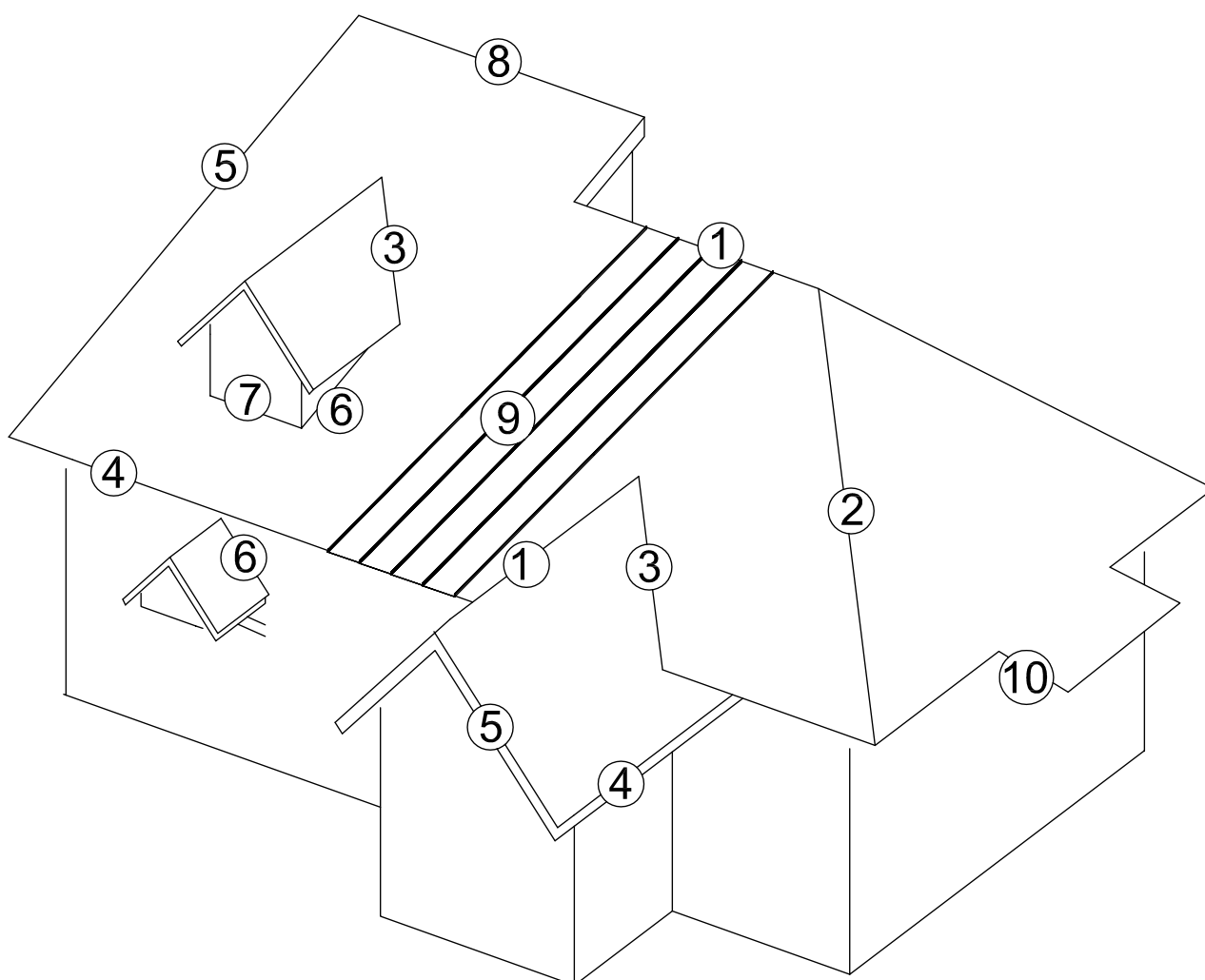
Roof parts

ROOF PART:

- 1. Ridge/ridge capping
- 2. Hip/outer edge
- 3. Mitre/inner capping
- 4. Bottom eaves
- 5. Overhang gable
- 6. Longitudinal roof-to-wall junction
- 7. Crosswise roof-to-wall junction
- 8. Upper eaves
- 9. Side overlap
- 10. Overhang gable

REQUIRED ROOF ACCESSORY/FLASHING:

- Ridge capping + ridge seal
- Ridge capping + hip seal
- Mitre plate + sealing tape 3 x 10 mm
- Bottom eaves flashing
- Gable flashing + side fastener
- End-wall flashing to the side + side fastener
- End-wall flashing + ridge seal
- Upper eaves flashing + ridge seal
- No accessories
- Gable flashing + lower flashing + side fastener



Further information on installation:

Tel: + 358 44 783 7225, +358 44 783 7224 on Mon-Fri, at 7.30 am-4.00 pm

HANDLING OF SHEETS, WORK SAFETY

1. Handling

1.1. 1.1. Reception of materials

Please check that all items specified in the covering letter are included. Notify the seller or the factory of any errors or damage apparent at the time of delivery and enter the information in the shipping document. Do not use a faulty product. Notifications regarding the delivery should be given within 8 days. The supplier will not be responsible for any costs incurred from replacing products installed contrary to the instructions provide in this guide.

Note! Any lifting slings that are included in the delivery must not be used after the unloading of the delivery by the driver.

1.2. Work safety

Avoid handling the sheets in windy conditions. Sheet edges and corners are sharp and there may be rough and sharp burrs after processing. Wear work gloves and protective clothing. Corrugated sheets are slippery even when dry, wet and icy sheets are extremely slippery. Always use a safety rope and soft-soled shoes when working on the roof. When moving a sheet bundle, make sure the lifting gear is properly secured and its capacity is sufficient for the (see the end of section 1.1). Make sure no one goes under a suspended bundle or sheet. Valid safety regulations must be observed while working.

1.3. Handling

The bundles will be unloaded from the truck onto an even surface provided by the customer. They must be stored approximately 20 cm off the ground. Crosswise supports must be positioned underneath the packaging board, with a maximum spacing of one metre (Figure 1).

Depending on the board length, the packaging boards may be spaced more than a metre apart, in which case pallets or similar structures can be used as supports.

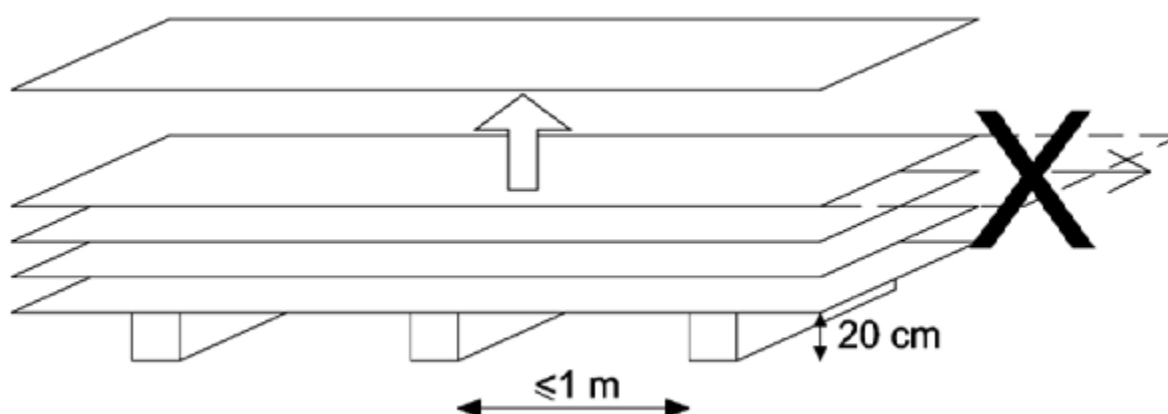


Figure 1. Handling of sheets

STORAGE, PREPARATIONS FOR INSTALLATION

Unpack the sheets from the bundles by lifting, not by pulling, because otherwise the sharp end of the sheet may damage the coating of the next sheet in the bundle. As thin metal sheets are highly susceptible to denting and bending, always handle them with care. The sheets must not be carried or lifted from the ends; always hold them from their upright seam. Any stains on the sheets can be removed with a mild detergent.

1.4. Storage

Under normal conditions, roofing sheets can be stored either in their transport packages or without packaging for a maximum of one month. When the sheets are stored for longer than this, cover the sheets and bundle them on a sloping surface, allowing any moisture accumulating between them to run off and evaporate. Secure the sheets against damage caused by wind by tying them down or placing an adequate weight on top of the bundle.

1.5. Preparations for installation and processing of sheets

Before installation, check the cross-measure of the pane of the roof (Figure 2) or the desired geometrical shape. Ensure that the eaves edge is straight and that the sheet lies on an even surface, and straighten out any indentations.

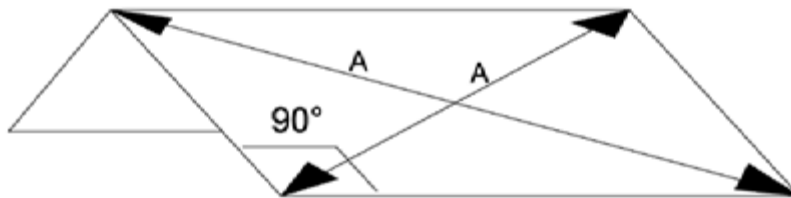


Figure 2. Cross-measure of the pane of the roof

Lift the sheets onto the roof along strong ramps or similar structures that run from the eave to the ground (Figure 3). Long sheets may get indentations if they are allowed to bend during lifting. This will cause problems during installation and may cause the lock joint to become loose.

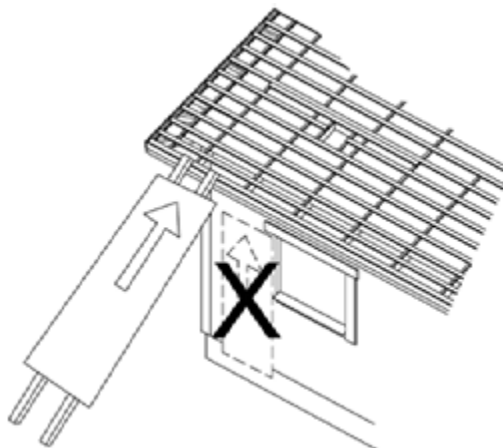


Figure 3. Lifting sheets onto the roof

Sheets used for roof cladding can be cut using a cordless circular saw (with a blade suitable for steel sheet), a nibbler, a jigsaw or tin snips. Always use safety goggles, hearing protectors and the necessary protective clothing. Do not cut or grind the sheets with an angle grinder, as the heat and hot splashes generated during cutting or grinding will damage the coating. Avoid cutting and any other hot work which might generate hot splashes within ten metres of the sheets. Protect the areas surrounding the processing site carefully as hot chips (e.g. from drilling) may damage the sheet surface. Remove any cutting and drilling chips carefully. Any rusting chips, scale and leftover rivet mandrels remaining on the surface may cause damage to it. Once the sheets are installed, we recommend treating any cut edges or scratches as well as the edges of eaves with touch-up paint or paint intended for repair painting. Stains on the sheets can be removed with a mild detergent.

Use scaffolding that is sufficiently high, set up at an appropriate distance from the roof and equipped with railings that comply with regulations. The vertical seams of the Progantti roofing sheets are protected with a plastic adhesive that should be removed as soon as the installation has been completed.

INSTALLING PROGANTTI

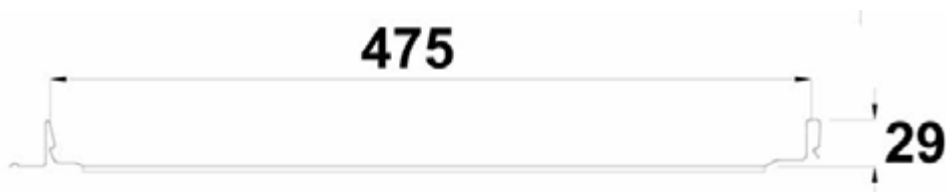


Figure 4a. PROGANTTI nominal cross-section dimensions in accordance with the tolerances specified in SFS EN-508-1

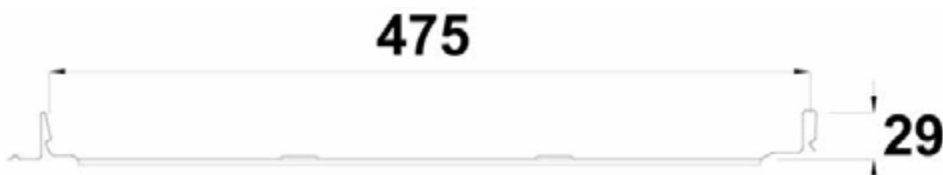


Figure 4b. PROGANTTIJ nominal cross-section dimensions in accordance with the tolerances specified in SFS EN-508-1

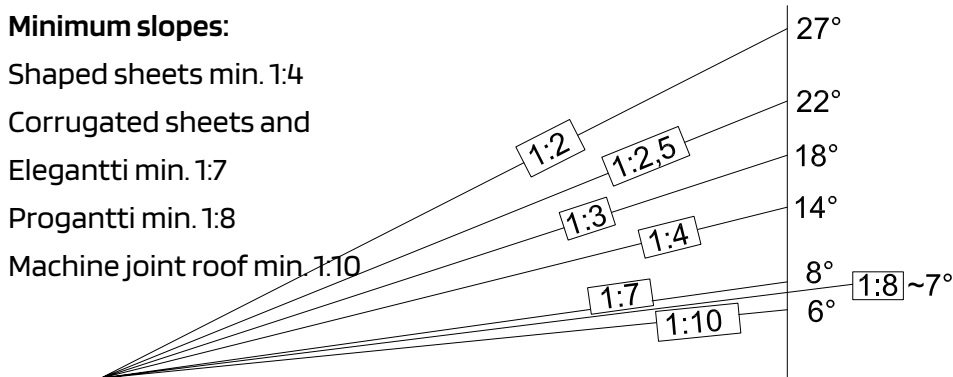


Figure 4c. Minimum slopes for various roofing types

2.1. Dimensioning of sheets

The sheet length is usually equal to the length of the upper frame beam + fascia board(s).

Progantti's material thickness is 0.6 mm in the Premium 50 quality class and 0.5 mm in the Standard 40 quality class. Progantti's minimum length is 1,500 mm and the minimum slope of a Progantti roof is 1:8.

2.2. Fasteners

Stainless steel flat head screws of 4.2 x 25 mm (for wooden battens, see Fig. 5) or 4.2 x 19 mm (for steel battens) must be used to attach the sheets. If the battens are less than 300 mm apart, this must be mentioned when placing the order, as it affects the number of screws required. The standard quantity of screws required is 7–8 screws per one square metre. Roofing screws with a seal, size 4.8 x 28 mm, are to be used to attach the bottom edge of mitre-cut roofing sheets and flashings (Figure 6).



Figure 5



Figure 6

2.3. Sheet quantity

The required sheet quantity can be calculated by dividing the ridge length with the sheet's effective width (475 mm) and rounding the resulting figure rounded up (if sheets are required for two roof panes, this figure must be multiplied by two).

The effective width of the outmost sheet is the same as its total width (approx. 505 mm).

If the calculated number of sheets required per roof plane is 12.3, a total of 25 sheets should be ordered. In this case, the last sheet of the first plane is cut and the remaining part of the sheet is used to start the other roof plane. Our dimensioning service calculates the number of sheets required for a hip roof. Mitre cuts required for hip and valley roofs must be made on site.

2.4. Underlay and ventilation battens

A waterproof underlay must be placed under the roofing sheets to prevent condensing water from entering the structures. Install the underlay so that it runs parallel to the ridge, starting from the bottom eaves. Fix the underlay to the rafters with a stapler gun, for example. The underlay strips must overlap by at least 150 mm. Do not pull the underlay too tight between the rafters but allow it sag by 20...30 mm (Figure 7).

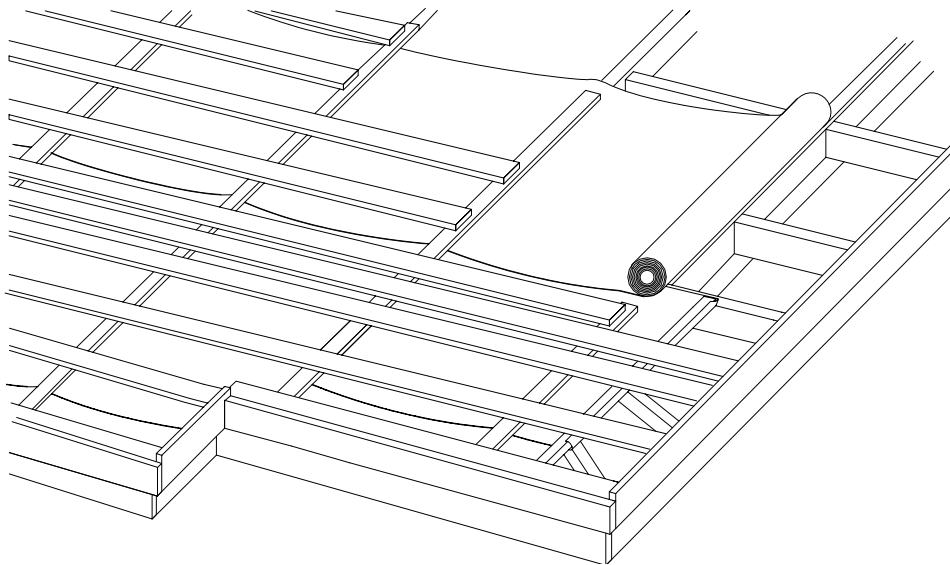


Figure 7. Underlay structure

Figures 8a–8d show an example of a ventilated ridge and the use of a ventilation spring. Leave a gap of approximately 100 mm in the underlay at the ridge and place an underlay strip on the ventilation battens as shown in Figure 8a.

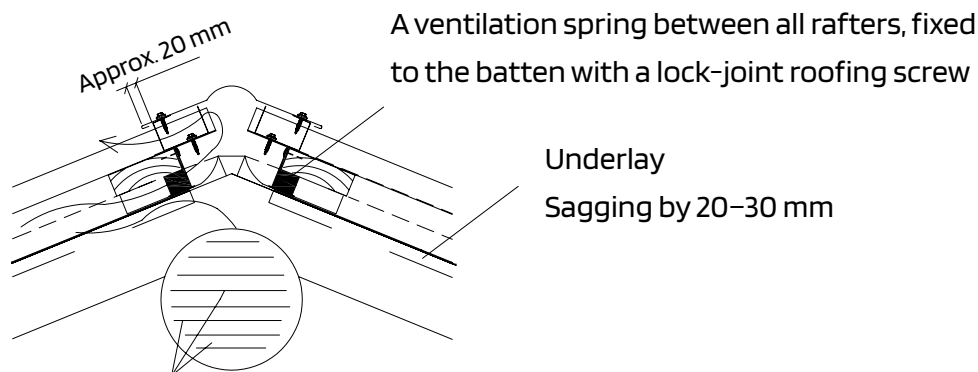


Figure 8a. Ridge structure

Mount a ventilation spring to the topmost batten between the rafters, on either side of the ridge, as shown in Figures 8a and 8b. Fix the ventilation spring (Figure 8c) to the side of the batten with fasteners, such as flat head screws.

The ventilation spring is designed to prevent the underlay strip from coming into contact with the batten at sub-zero temperatures (when the underlay becomes tighter) to ensure sufficient ventilation in all conditions (Figure 8d).



Figure 8b. Ventilation spring

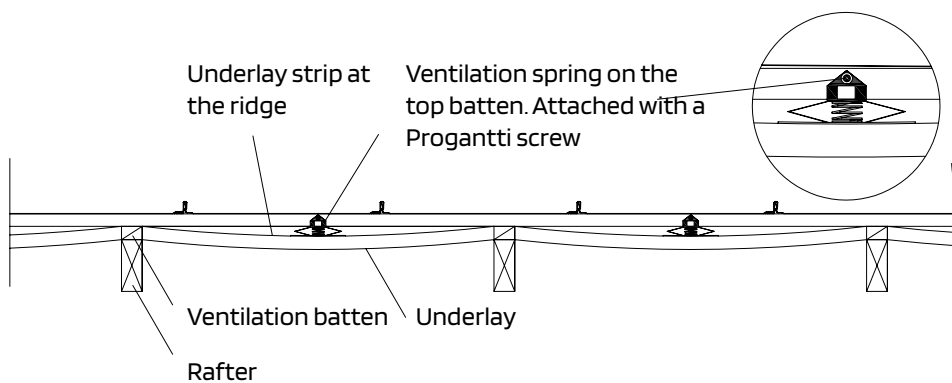


Figure 8c. Location of the ventilation springs at the ridge

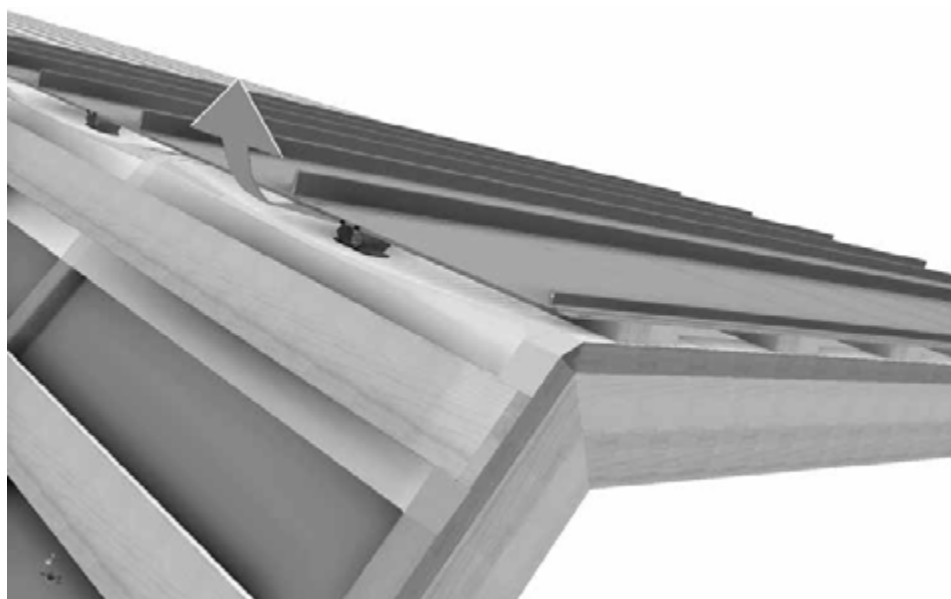


Figure 8d. Ventilation springs ensure sufficient ventilation also in the wintertime

Install the underlay far enough at the eaves to prevent condensing water from entering the wall structures but so as to allow air to circulate above the underlay (Figure 9). The underlay should extend at least 200 mm over the outermost point of the wall. Fix battens (recommended thickness 32 mm) over the underlay with nails.

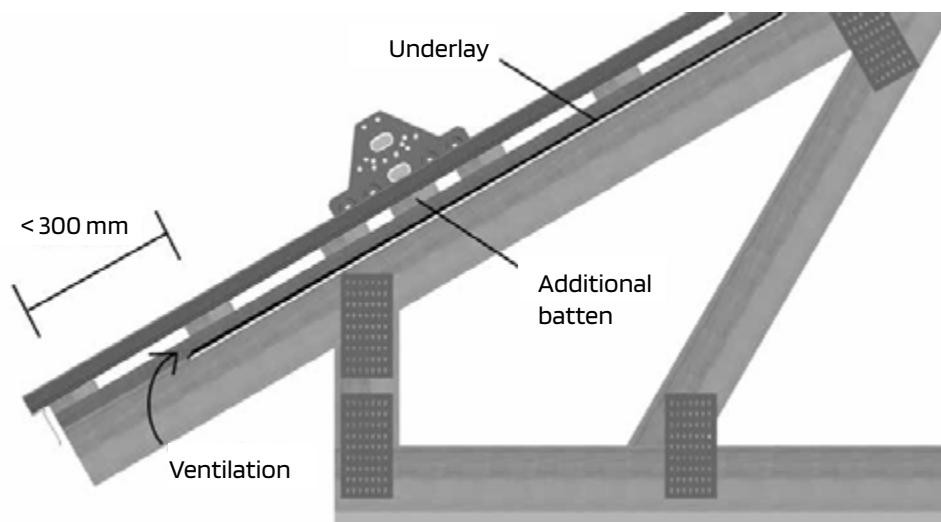


Figure 9. Eaves structure

2.5. Ventilation

2.5.1. Ventilation for battens

A ventilation batten is nailed across the underlayment over the rafters and the eave structure must be designed to allow air to circulate from the eave to space between the underlayment and the roofing sheets. At the ridge, the air is directed out via the ridge seal. At the hips, the air is directed out via a perforated hip seal.

2.5.2. Ventilation underneath the underlay

The eaves structure must be constructed so as to allow air to circulate unimpeded from the eaves to the ventilation space underneath the underlay. From there, air is directed out via ventilation grilles in the end wall. With roofs that have insulation material running along the pane of the roof all the way to the ridge, breathable material can be used for the underlay or a gap can be left in the underlay at the ridge (see Figure 8a). The ventilation space underneath the underlay must be at least 100 mm across the entire roof.

2.6. Battens

Progantti's batten dimensions are 32 x 75 mm (with maximum spacing of 275 mm) or 25–32 x 100 mm (with maximum spacing of 300 mm). Additional batten(s) should be installed at the eaves, in areas surrounding the frame of the exterior wall and at any penetrations, as well as in areas with snow breakers. Use 2.8 x 75 mm galvanised nails hammered in at a slant to fix the battens to the rafter (2 nails per crossing). Please note: At the ridge, fix the topmost batten to a place where the ridge seal's screw does not come into contact with the batten (Figure 8a). Battens must be prevented from getting wet during the installation of the sheets.

2.7. Eaves flashing

The eaves flashing must be fixed to the eaves with fasteners, such as flat head screws, spaced approximately one metre apart before the sheets are installed. The eaves flashings must be installed flush with one another, and they must not overlap. The flashings must be carefully aligned with the eaves as their determine the straightness of the sheet edge (Figure 10).

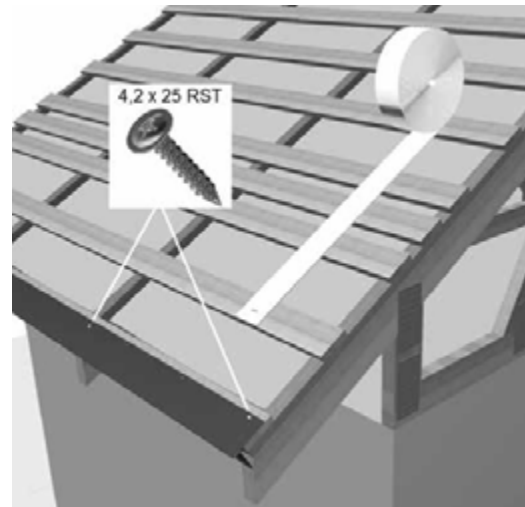


Figure 10. Eaves flashing and damping strip

The edge of the eaves flashing can be bent upwards when the gutter pipes are being installed and then straightened to its original position to allow it to direct water into the gutter (Figures 10 a–d).

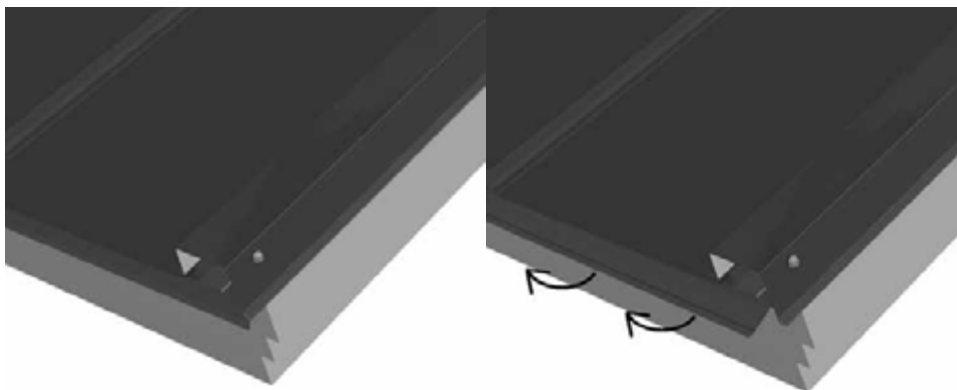


Figure 10a

Figure 10b

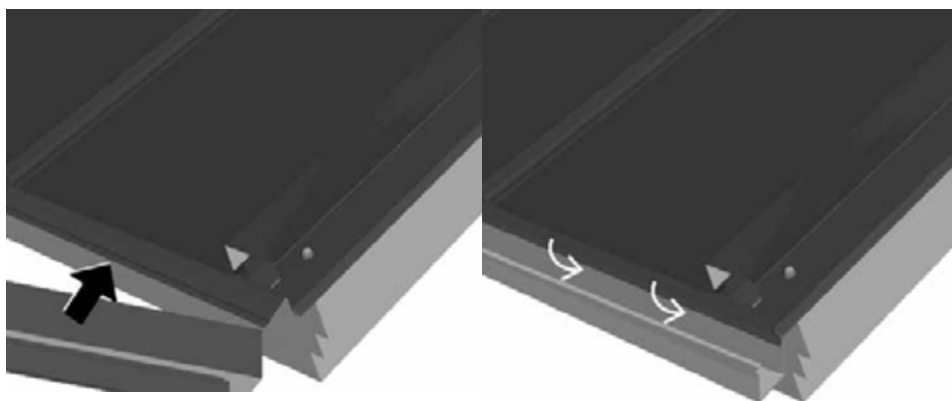


Figure 10c

Figure 10d

2.8. Damping strip

3 x 100 mm damping strip is placed between the sheets and the battens to dampen the sound of the wind against the roofing sheets. The damping strip must be fixed to the battens with a stapler gun (starting from the second batten at the bottom and extending all the way to the second batten from the top) lengthwise in the middle of each sheet (Figure 10).

2.9. Installation of sheets

During installation, be careful when walking on the sheets as they are susceptible to cracking under concentrated loads! When walking on the roofing sheets, always step in the area over a batten. Progantti sheets must always be installed from right to left when viewed from the ground. Position the first sheet on the right edge of the pane of the roof (viewed from the ground), approximately 15 mm from the fascia by hooking the turned edge to the fastener of the eaves flashing (Figures 11, 12 and 13).

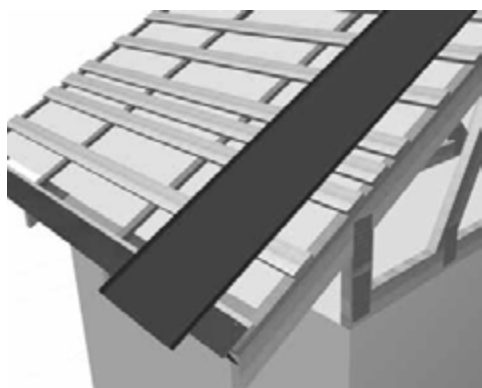


Figure 11

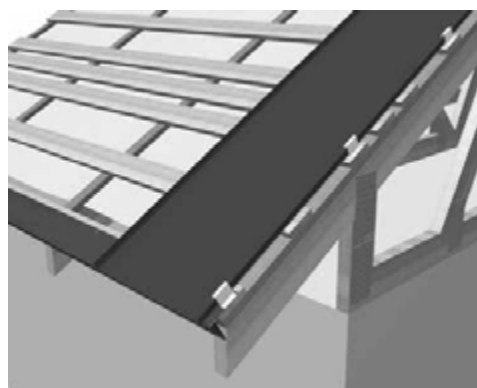


Figure 12

2.10. Fixing of sheets

Attach the sheet with flathead stainless steel (AISI 410) lock-joint screws (4.2 x 25 mm) to the battens through the screw holes on the sheets, with a spacing of 300 mm as shown in Figure 14. The total quantity of screws required is about 8 screws per square metre. When tightening the screws, press the sheet next to the screw hole against the batten with your foot. When installing long roofing sheets in particular, it is essential that the screws are positioned at the correct locations to prevent problems caused by thermal movements of the roof.

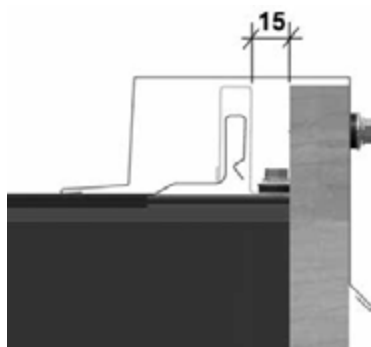


Figure 13. Distance between the sheet and the roof edge

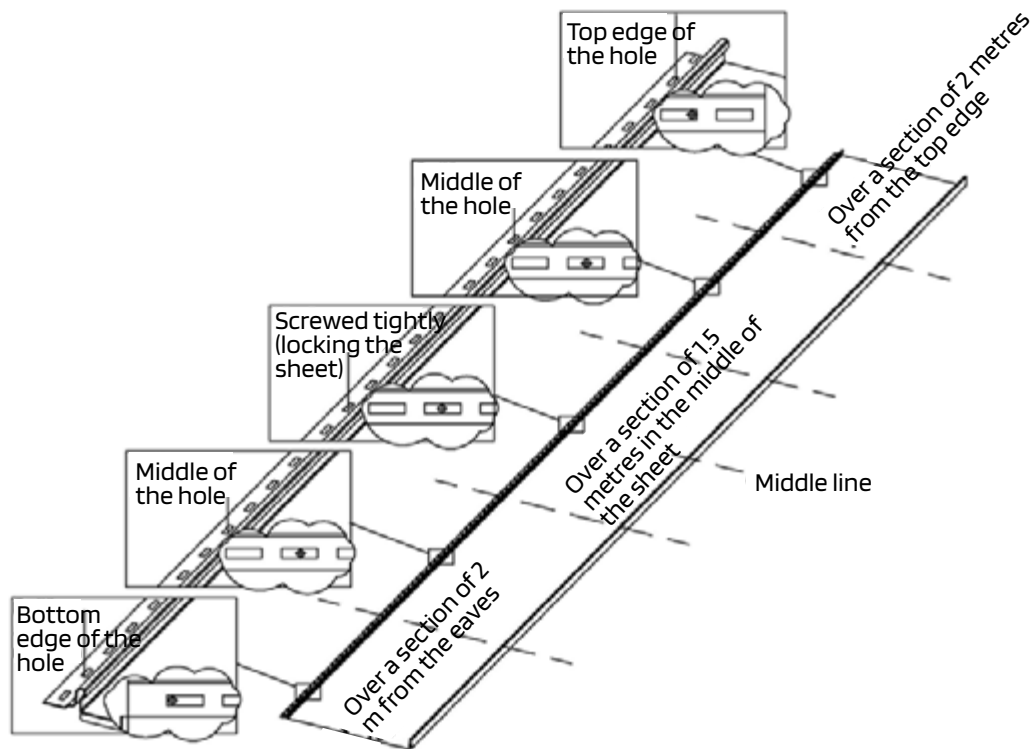


Figure 14. Placement of the 4.2 x 25 stainless steel screws in the various parts of the roofing sheet

Screws must be tightened so that they are tight against the sheet but do not sink into it (Figures 15 and 16). Screws that are fixed too tightly may interfere with thermal movement, resulting in warping and noise when temperature changes.

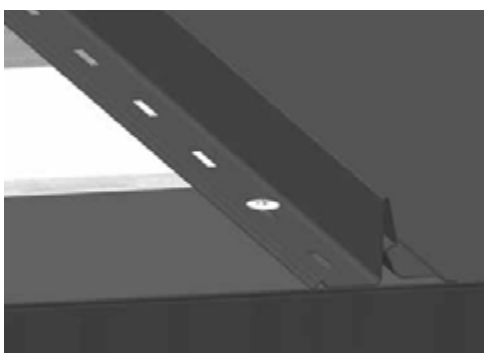


Figure 15. Correct screw tightness



Figure 16. A screw that is too tight

Align the high edge of the second sheet with the low edge of the lower sheet so that the bottom edge of the sheet extends about 4 cm over the eave. Press the lock joint closed over a distance of a couple of metres starting from the eave (Figure 17).

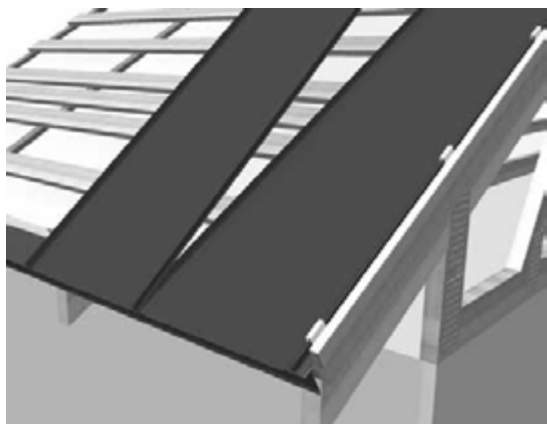


Figure 17. Installation of the second roofing sheet

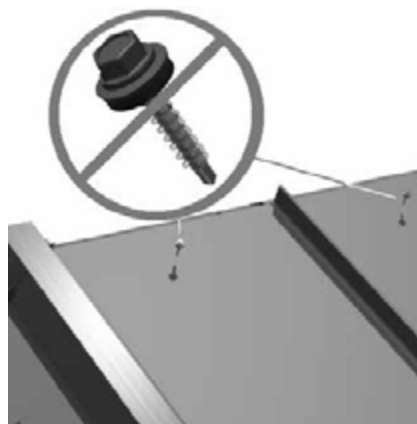


Figure 18. Do not fix the sheets to the battens from the top end with screws

Align the bottom edges of adjacent sheets using, for example, a rubber hammer, press the lock joint closed over the remaining stretch of the sheet and fix the sheet to the batten in the same way as the first sheet. Install the remaining sheets as above. Do not fix the top edge of the sheet onto the batten (Figure 18). If the last sheet extends over the roof edge, it must be cut to the right size. In this case, cut the sheet so that it extends 5 mm over the gable eave and use e.g. pliers to turn the edge upwards approx. 20–25 mm over the entire length of the sheet so that the upturned sheet edge is located 15 mm from the end of the roof (the turned edge can be finalised by tapping the edge against a board with a rubber hammer when the sheet is placed face down, see Figure 19).

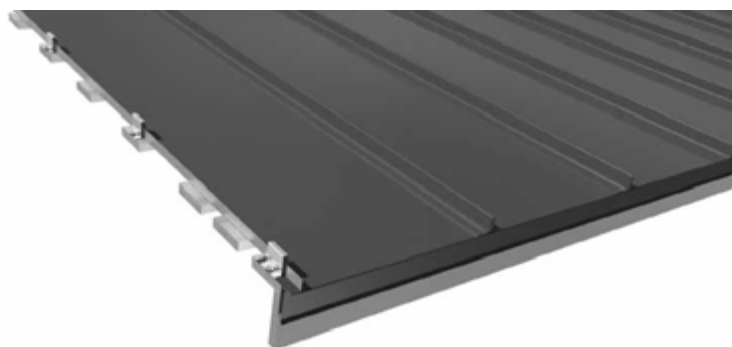


Figure 19. Turning the edge of the sheet

The roof can be given a symmetrical appearance by also cutting the first sheet of the pane of the roof so that it is the same width as the last sheet. The outermost sheets can be attached to the batten through the gable flashing (which may cause warping due to thermal movements) or with side fasteners. If side fasteners are used, the sheets can be fixed onto the batten with roofing screws through the gable flashing over a section of approximately 1.5 metres at the middle of the sheet and with side fasteners elsewhere.

Attach the side fasteners to every other batten with a single roofing screw. The side fastener's edge attached to the roof plane fixes the sheet in place but allows for thermal movement (Figures 20 and 21).

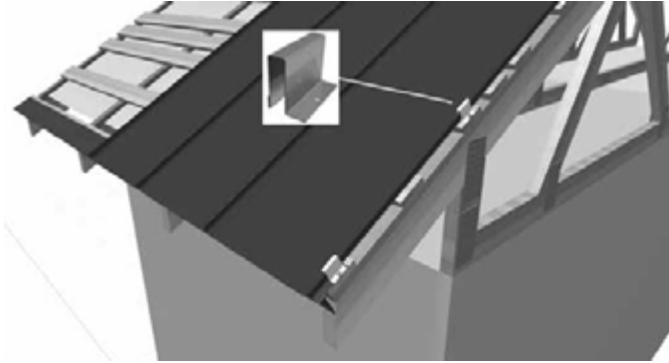


Figure 20. Attaching the side fastener to the batten

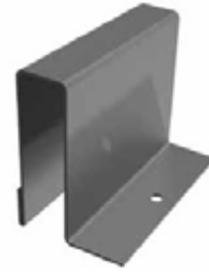


Figure 21. Side fastener

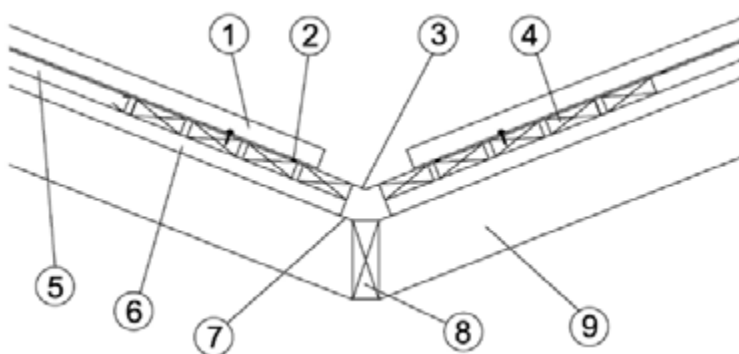
2.11. Inner mitre

An example of a valley using a V flashing is given in Figure 22.

To begin with, install a full-width underlayment strip so that it runs in the same direction as the valley all the way to the principal rafter. After this, install underlayment in the other areas of the roof.

Attach ventilation battens (thickness of 32 mm) along the entire upper frame beam, starting approx. 50 mm from the bottom of the valley. Install valley sheathing (10 studs 10 mm apart) starting approx. 50 mm from the bottom of the valley. Fix battens over the ventilation battens in line with the sheet profile's batten distribution all the way to the valley sheathing.

The valley flashings are installed from the eave towards the ridge. Position the valley flashings so that they overlap by at least 200 mm and apply elastic sealing paste that is suitable for outdoor use between the flashings. Attach the sealing strip (3 x 10 mm) to the valley flashings along the valley. Use flat head lock-joint roofing screws (4.2 x 25 mm) to fix the sheets to each batten through the screw holes and fix the sheet's bottom edge to the valley flashing with at least three screws with sealing (4.8 x 28 mm). The free width of the inner mitre (horizontal gap between the sheets) is about 200 mm.



- 1. Roofing sheet
- 2. Sealing tape 3 x 10 mm
- 3. Mitre plate
- 4. Sheathing for the mitre
- 5. Batten
- 6. Elevation batten
- 7. Underlay
- 8. Valley rafter
- 9. Principal rafter

Figure 22. Inner mitre

2.11.1. Inner mitre ending at the pane of the roof

An example of a valley ending on the roof plane is shown in Figures 23 a–c.

The roofing sheet is installed in 2 parts: sheet (1) and sheet (2) in the figures.

The inner mitre shown in the picture is constructed as described in section 2.11. but in the following order:

A. Install a roofing sheet at the eaves so that it extends at least 400 mm above the end point of the inner mitre lengthwise along the pane of the roof. Turn the edges of the cut sheet that comes against the wall should upwards by about 20–25 mm.

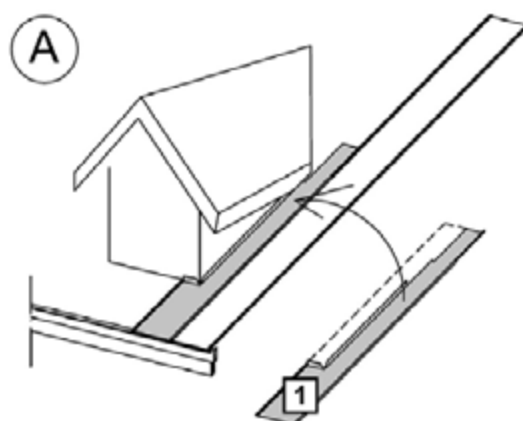


Figure 23 A. Cutting the sheet [1] at the eaves

B. Fix the inner mitre flashing that has been cut in line with the shape of the eaves of the side roof onto the battens with a couple of flat head lock-joint roofing screws placed in the area that will remain under the roofing sheet. Place mitre seals on both sides approximately 150 mm from the centre line over the entire length of the valley.

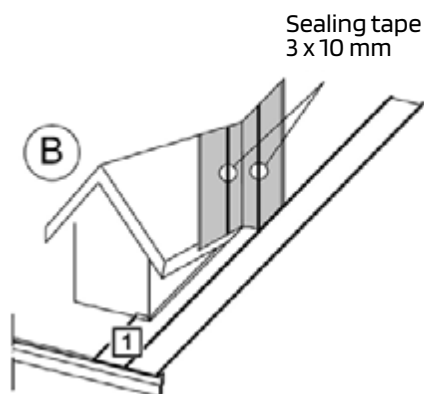


Figure 23 B. Cutting mitre plates and fixing mitre seals

C. Install a sheet cut to fit the shape of the valley at the ridge [2].

The bottom edge of the sheet must be fixed with three roofing screws with sealing.

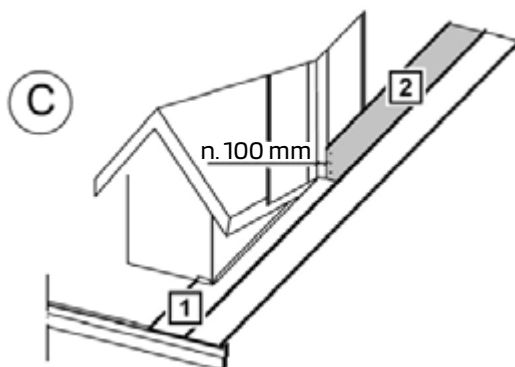


Figure 23 C. Cutting and fixing the sheet [2] installed at the ridge

2.12. Gable flashing

Install gable flashings proceeding from the eaves toward the ridge. The flashings must overlap in the longitudinal direction by approximately 100 mm. When using side fasteners, fix the gable flashing from the side at the top edge of the gable board with 4.8 x 28 mm roofing screws placed approximately 500 mm apart (Figure 24a). In such a case, the gable flashing can be fixed to the batten through the roofing sheet over a section of 1.5 metres at the middle of the pane of the roof (Figure 24b). Gable flashings can also be fixed to the batten through the roofing sheet and to the end-wall fascia with roofing screws placed about one metre apart. This may, however, result in warping of the outermost sheets due to thermal movements.

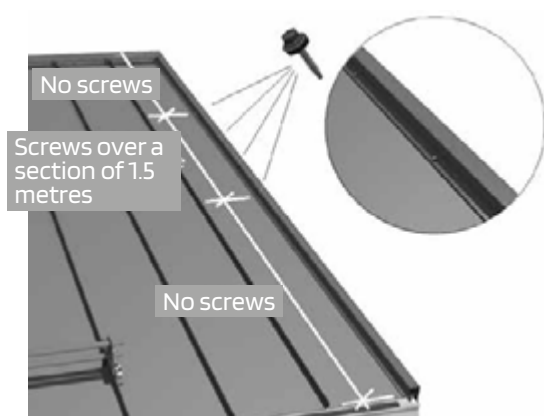


Figure 24a. Attaching the gable flashing to the fascia

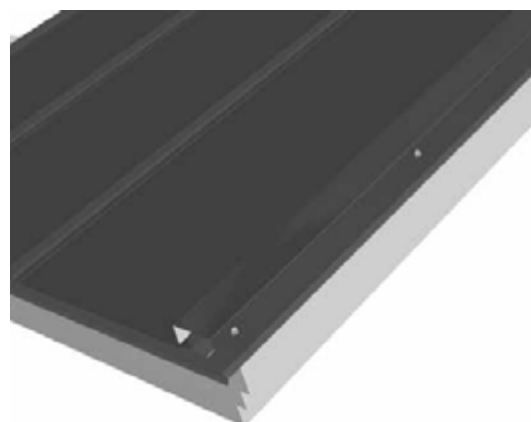


Figure 24b. Attaching the gable flashing to the batten

2.13. Lower eaves flashing

At the eave, in overhang areas, it is possible that water enters the space under the gable flashing and causes the gable board and the eave's sheathing to get wet (Figure 25).

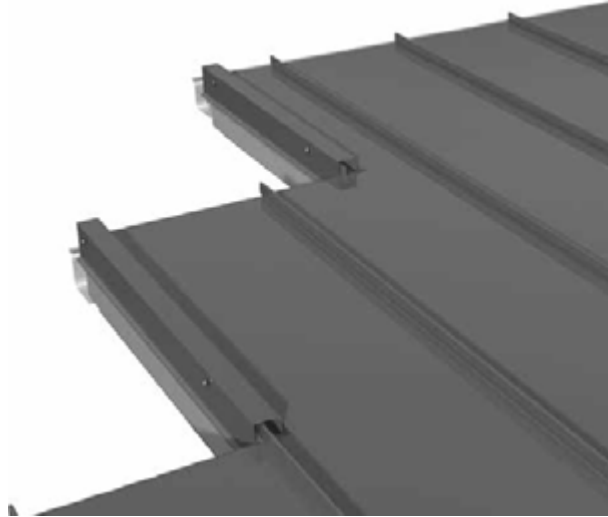


Figure 25. Overhang

In such a case, a lower eaves flashing should be installed under the gable flashing to direct rainwater to the gutter. With this structure, it is essential that the top edge of the fascia remains level with the batten. The lower eaves flashing (Figure 27) is 2 m long and it must be installed at the same level with the fascia. The flashings must overlap longitudinally by about 100 mm. The top edge of the flashing must be cut to size and its turned edge must be cut off so that the flat part of the flashing extends about 200 mm under the topmost roofing sheet. The flashing must be fixed to every other batten with roofing screws with sealing (Figure 26).

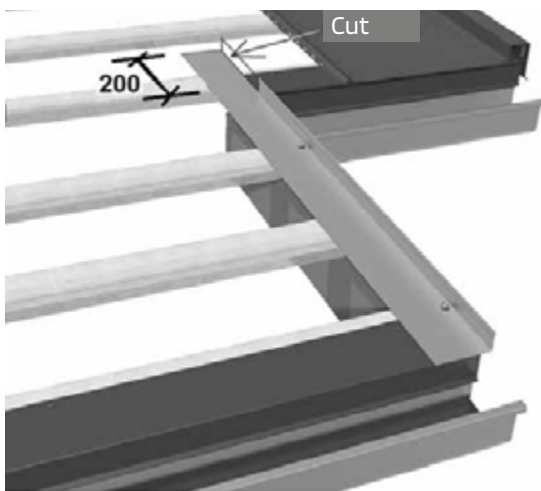


Figure 26. Lower eaves flashing

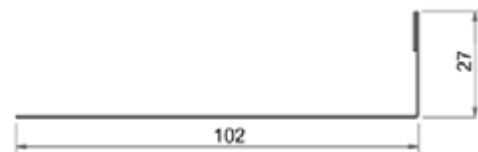


Figure 27. Dimensions of the lower eaves flashing

At the end-wall eave, the roofing sheet is cut so that it extends approx. 5 mm over the edge of the overhang; the sheet edge is then turned upwards for about 25 mm (see also Figure 19). This leaves space for a side fastener between the upturned sheet edge and the lower eaves flashing (Figure 28).

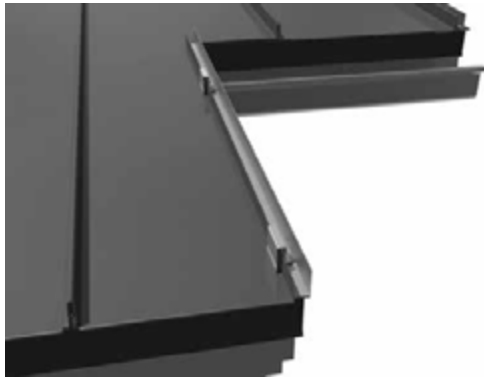


Figure 28. The lower eaves flashing and side fasteners fixed in place

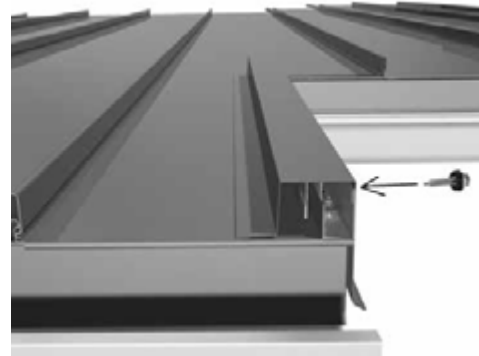


Figure 29. The gable flashing installed in place

The gable flashing is installed tightly against the lower eaves flashing and it is fixed in place through the lower eaves flashing with screws at 500 mm intervals (Figure 29). A flap should be bent at the top end of the gable flashing to prevent debris from entering underneath the gable flashing (Figure 30).

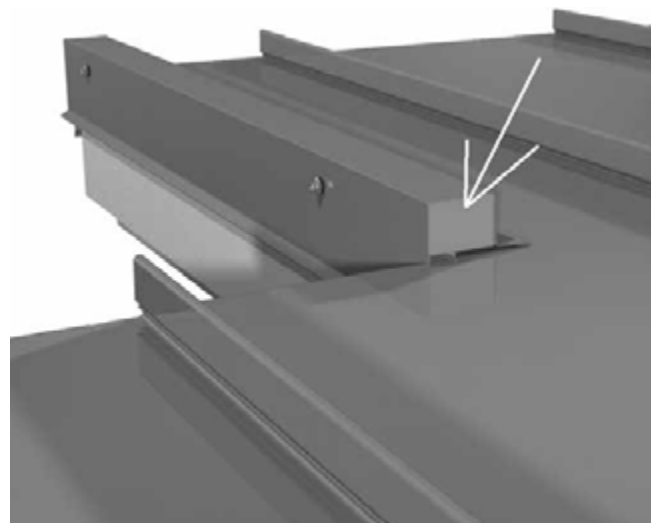


Figure 30. Forming the top end of the gable flashing

2.14. Ridge seal

Mark the locations of edges of the ridge capping on the gable flashing. When in place, the ridge seal should remain about 20 mm lower than the edge of the ridge capping (Figure 8a).



Figure 31. Fixing the Progantti ridge seal

2.15. Ridge capping

Fix the ridge capping with 4.8 x 28 mm roofing screws to the ridge seal in the middle of each roofing sheet (Figure 34). Ridge cappings must overlap by no less than 100 mm. Do not fix the ridge cappings to one another with screws.

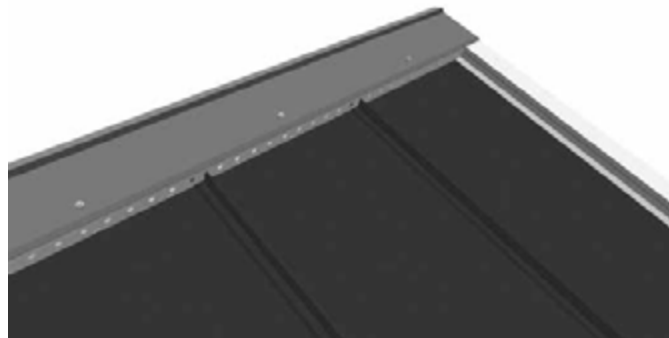


Figure 32. Installing the ridge capping

2.16. End wall flashing

At a crosswise wall-roof junction, turn the top edge of the roofing sheet upwards against the wall for 200–300 mm. Ensure ventilation for the roof and wall structures (Figures 35 and 36).

The top edges of roofing sheets should also be turned up for 25 mm with wide-jaw pliers in the sections between upright seams (Figure 36). This prevents melt water from entering the structures.

At the junctions, a ridge seal is installed between the end-wall flashing and the roofing sheet in accordance with section 2.12.

Bend the end-wall flashing so that its angle corresponds with the slope of the roof and fix it with roofing screws to the ridge capping in the middle of each roofing sheet. Leave the top edge under the wall coating (in the case of a stone wall, place the top edge in a groove cut into the wall and seal it with sealing compound).

- 1. Underlay
- 2. Ventilation batten
- 3. Batten board
- 4. Ridge seal
- 5. End wall flashing
- 6. Wall studwork
- 7. Cladding
- 8. Vertical studwork + ventilation space
- 9. Wind breaker
- 10. Principal rafter

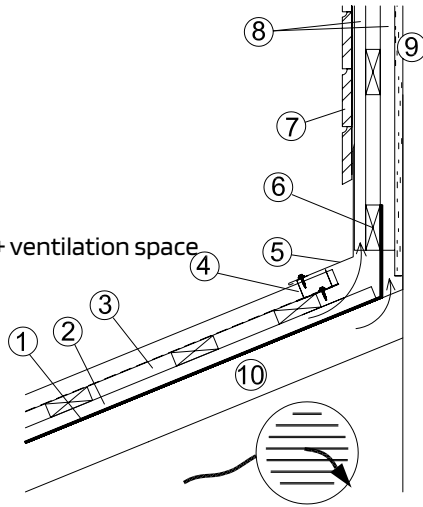


Figure 33. Crosswise roof-to-wall junction

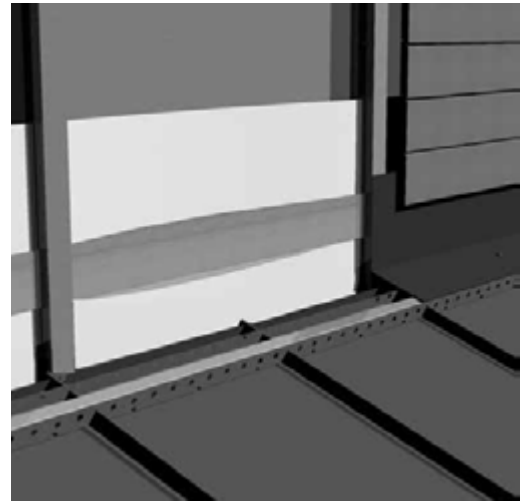


Figure 34. Crosswise roof-to-wall junction

In lengthwise wall-roof junctions, the required accessory is the end-wall flashing to the side (Figure 37). The flashings must overlap by at least 100 mm and be sealed with sealing compound.

Only the flashing's vertical section is to be fixed onto the wall. The flashing must not be fixed to the batten through the roofing sheet in areas other than section of 1.5 metres in the middle of the roofing sheet. The sheet is attached to the underlying structure with side fasteners.

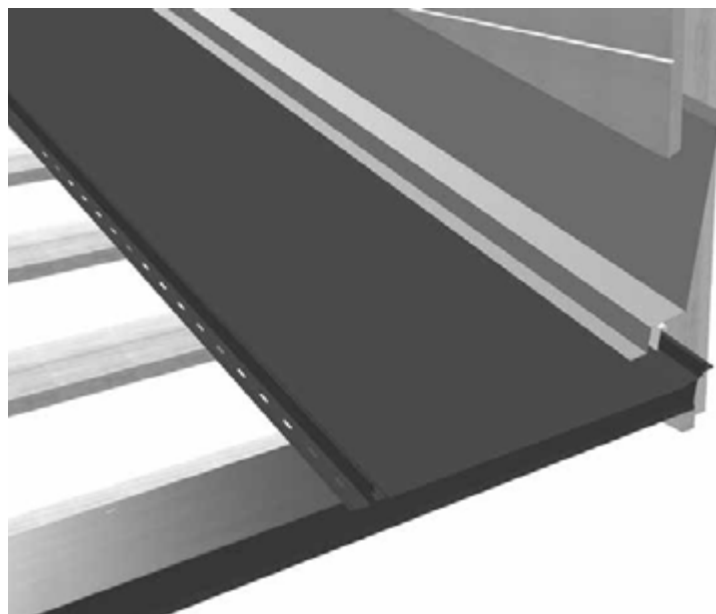


Figure 35. End wall flashing to the side

2.17. Edge trim

An edge trim is used at the bends of a gambrel roof's panes (Figure 38) and at points where the slope of the roof becomes less steep (Figure 39).

Start by installing the sheets of the lower slope. Install ridge cappings in a location where they remain on the inside of the edge trim by about 20 mm (for attachment, see Figure 32 or 33). Fix the edge trim with flat head lock-joint roofing screws to the batten above the bend and with roofing screws with sealing to the ridge cappings. After this, install sheets on the top slope as usual. Note the length of the roofing sheet on the top slope: the sheet should extend over the rafter end by about 180 mm, with a slope of 1:2.

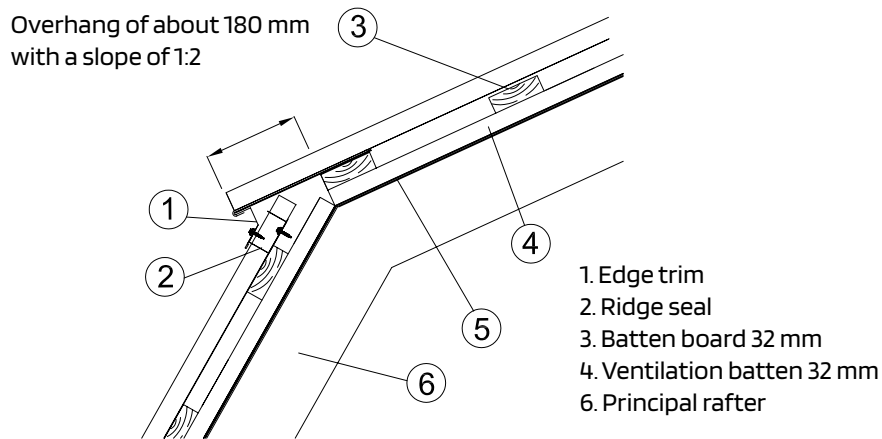


Figure 36. Gambrel roof edge

At the point where the slope of the roof becomes less steep (Figure 39), start by installing the sheets of the lower slope. Attach ridge seals at a location where they will remain on the inside of the edge trim by about 20 mm (for more information on fixing, please see Figure 32 or 33). Fix the edge trim with roofing screws with sealing only to the ridge seals. Continue by installing the sheets on the top slope as usual (hooking the bottom edge of the sheet to the edge trim's edge). Attaching of the roofing sheets fixes the edge trim's top edge to the batten.

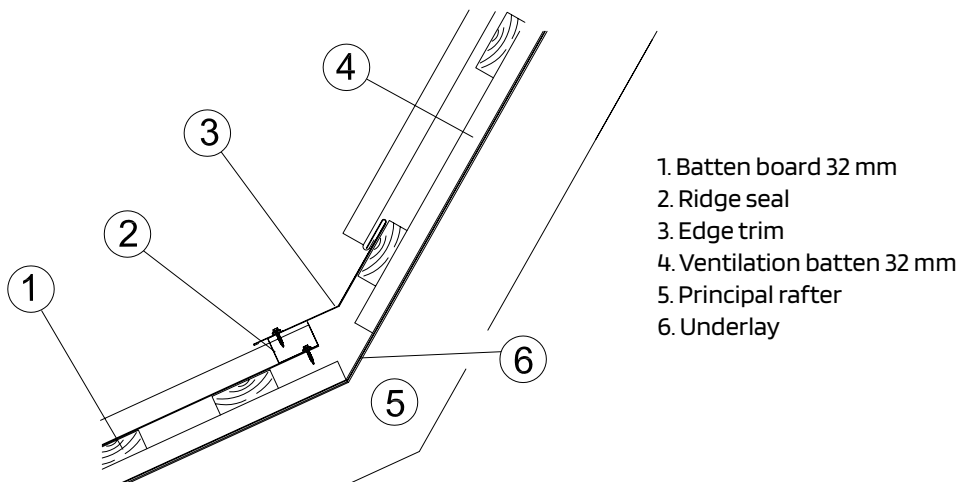


Figure 37. The slope of the roof becoming less steep

2.18. Hip seal

A perforated hip seal is used at hips to prevent snow and water from entering the wooden structures and to provide a base for the ridge capping. Bend the top edges of the sheet upward by about 10 mm (to prevent water from entering the structures in windy conditions). When Progantti sheets are used as the roofing material, a 3 x 10 mm gasket tape is used for the flat area between the hip seal and the sheet.

The hip seal must be fixed onto the roofing sheet from the edge on the hip side (from the bottom of the sheet's vertical seam) with 4.8 x 28 mm roofing screws placed at 1 m intervals. The seals must overlap by approximately 50 mm. Cut a notch in the hip seal at the sheet's vertical seam with metal scissors, for example. The hip seal's outer edge should remain approximately 100 mm from the hip's centre line.

2.19. Upper eaves flashing

An upper eaves flashing must be used at the top edge of a single pitch roof. Install ridge seals in accordance with section 2.12. Fix the upper eaves flashing to the ridge seal in the middle of the sheet and to the fascia with roofing screws with sealing placed at 1 m intervals. The flashings must overlap by about 100 mm. (Figure 40). On roofs that are exposed to winds and that are not steep, the top edge of the sheet should be turned up by about 10 mm to prevent water from entering the structures.

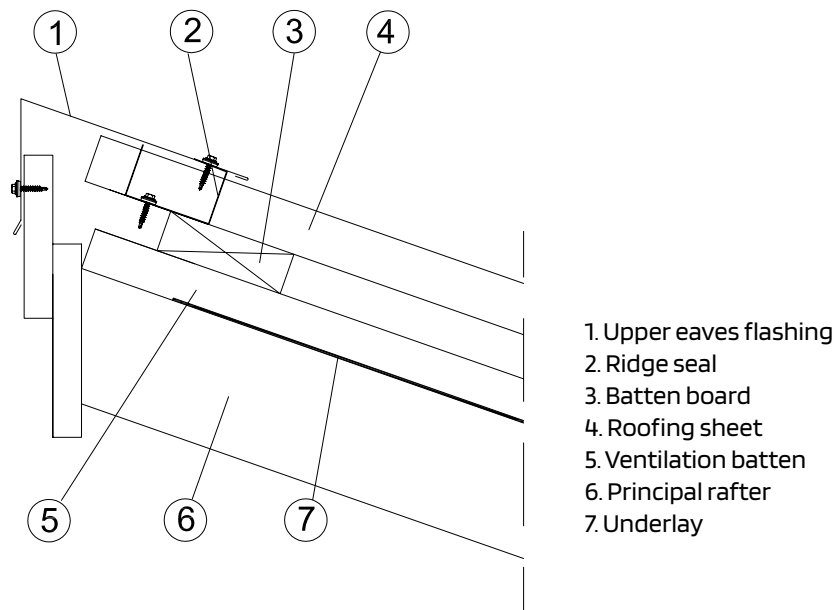


Figure 38. Upper eaves flashing

2.20. Penetrations

We recommend placing all penetrations as close to the ridge/upper eaves as possible (Figure 41).

Battens coming close to a chimney must be supported with beams and additional battens must be installed as necessary. The accessories for penetration elements (roof extractor, sewer ventilation pipe, ventilation system pipe) include an underlay sealing flange and an EPDM rubber sealing unit (detailed installation instructions are included in product packages). Sealing compound suitable for roofs must be used in between penetration pieces and the roof sheet and in between penetration pieces and ventilation pipes if the roof slope is 1:5 or less. Air-conditioning pipes and equipment must be supported by the roof frame and not by the inlet element. Heavy snow loads must be removed from areas above the inlet. If the inlet is located more than a metre from the ridge, a snow breaker should be installed above it.



Figure 39. The placement of penetration elements on the pane of the roof

2.201. Installation of trap door

If the delivered trap door is different from one shown in the figures, the installation must be performed in accordance with the instructions provided with the delivery.

1. The trap door must be installed so that its top edge will remain underneath the ridge sheet. If this is not possible, the trap door's top edge must be placed under the ridge sheet with a cover sheet.

2. Outline the trap door location on the roofing sheet.

The opening should be 620 mm x 675 mm in size.

If necessary, use the trap door as an aid to find the right spot.

Enlarge the opening at the vertical seam by 50 mm at both the top and bottom edge. Check that the opening will not be over a rafter.

3. Cut an opening in the roofing and the battens underneath it. (Figure a)

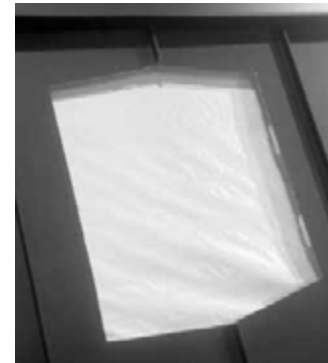
4. Spread sealing compound onto the bottom edge of the trap door's base, the trap door's outer edges and the seam's grooves so that the pre-drilled screw holes remain inside the area covered by the compound. (Figure b)

5. Insert the bottom plate in the opening in the roofing sheet and fix it to the roofing sheet via the predrilled holes at the outer edge.

6. Cut the underlay from corner to corner and shorten the sides to fit the elevation element.

Attach the cut edges of the underlay to the elevation element with 40 mm x 100 mm strips of adhesive tape. The corners are secured with 100 mm x 150 mm strips of adhesive tape. 2 strips of adhesive tape are used for each corner, overlapping each other by 20–30 mm.

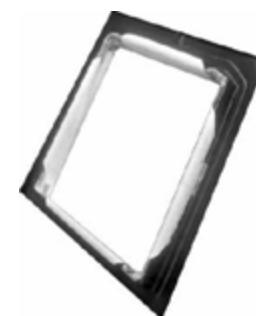
Do not cover the screw holes in the corners with adhesive tape. (Figure c)



a. The opening and cut battens



b. Ensure that the sealing compound is spread outside the predrilled screw holes



c. Underlay attached to the base's elevation element from the corners and sides with tape

7. Spread sealing compound in the innermost groove of the trap door's base, around the entire length of the trap door. (Figure d)

8. Press the lid and its collar into the base installed in the roofing sheet. (Figure e)

9. Open the trap door's lid and attach with screws to the pre-installed counter parts at the corners of the base, thereby attaching the lid to the base.

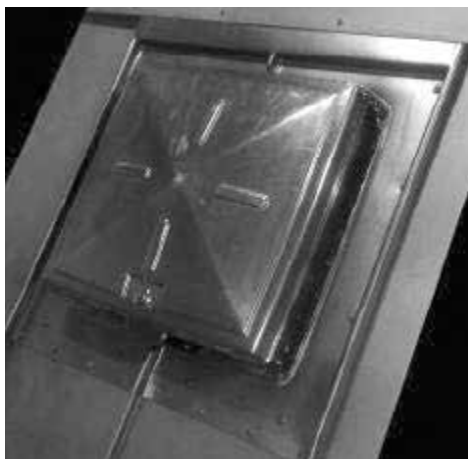
Please note: Tighten the screw just enough for it to go all the way to the bottom of the hole but not damaging the trap door's collar. (Figure f)



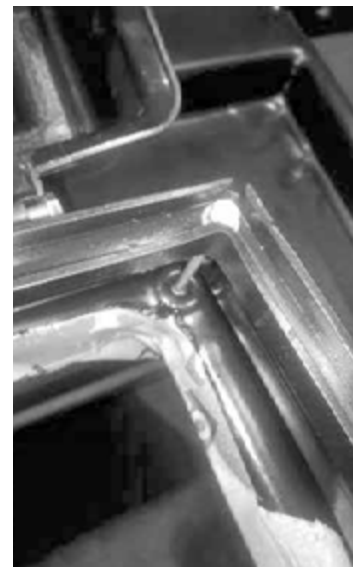
d. Sealing compound on the base of the trap door



e. Connecting the trap door to the base



The installed trap door



f. Fixing the trap door to the base

2.21. Snow breaker

Using a tubular snow breaker is recommended at least at locations where people will walk near or under the eaves or there are plants on the ground that might be damaged by falling snow. The tubular snow breaker is installed on the roof in the area where snow piles up over a load-bearing wall.

Attach the snow breaker's brackets (4) to every other sheet seam with bolts (Figure 42). Push the oval tubes (2) in place and insert 8 x 35 mm bolts through the holes at their ends to prevent the tubes from sliding out sideways.

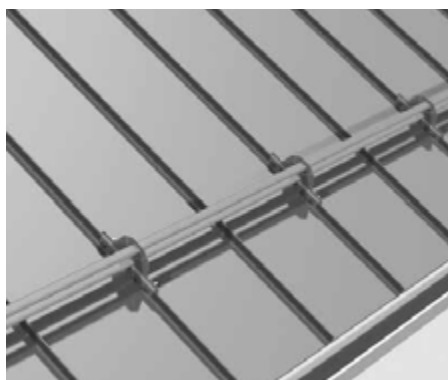


Figure 40. Attaching the snow breaker to the upright seam

Please note: We recommend that snow is cleared off the roof if the accumulated snow load exceeds the roof's rated bearing capacity (further information is available on the website of the Finnish Environmental Administration at www.ymparisto.fi). If the pane of the roof is long, more than one row of snow breakers may have to be installed over the length of the pane. Table 1 indicates the allowed maximum roof pane length at different snow loads when the roof has a single row of snow breakers. For example, with a roof slope of 1:3 = 18° and snow load of 2.0 kN/m², the maximum length of the pane with one row of snow breakers is 9.7 m.

| Roof slope | | | Snow load kN/m ² (~100 kg/m ²) | | | | | | | |
|------------|----------|----------|---|-------|-------|-------|-------|-------|-------|-------|
| in degrees | as ratio | as image | 1 | 1,5 | 2 | 2,5 | 3 | 3,5 | 4,5 | 5,5 |
| 6° | -1:10 | | 60 m | 40 m | 30 m | 24 m | 20 m | 17 m | 13 m | 11 m |
| 10° | -1:5 | | 37 m | 24 m | 18 m | 15 m | 12 m | 10 m | 8,1 m | 6,6 m |
| 14° | 1:4 | | 27 m | 18 m | 13 m | 11 m | 8,9 m | 7,6 m | 5,9 m | 4,8 m |
| 18° | 1:3 | | 21 m | 14 m | 11 m | 8,5 m | 7,1 m | 6,1 m | 4,7 m | 3,9 m |
| 23° | -1:2,5 | | 17 m | 12 m | 8,7 m | 7,0 m | 5,8 m | 5,0 m | 3,9 m | 3,2 m |
| 27° | 1:2 | | 15 m | 10 m | 7,7 m | 6,2 m | 5,2 m | 4,4 m | 3,4 m | 2,8 m |
| 33° | 1:1,5 | | 14 m | 9,1 m | 6,8 m | 5,5 m | 4,6 m | 3,9 m | 3 m | 2,5 m |
| 38° | | | 13 m | 8,6 m | 6,4 m | 5,2 m | 4,3 m | 3,7 m | 2,9 m | 2,3 m |
| 42° | | | 13 m | 8,4 m | 6,3 m | 5,0 m | 4,2 m | 3,6 m | 2,8 m | 2,3 m |
| 45° | 1:1 | | 13 m | 8,3 m | 6,3 m | 5,0 m | 4,2 m | 3,6 m | 2,8 m | 2,3 m |
| 50° | | | 13 m | 8,5 m | 6,3 m | 5,1 m | 4,2 m | 3,6 m | 2,8 m | 2,3 m |
| 55° | | | 13 m | 8,9 m | 6,7 m | 5,3 m | 4,4 m | 3,8 m | 3,0 m | 2,4 m |
| 60° | | | 14 m | 9,6 m | 7,2 m | 5,8 m | 4,8 m | 4,1 m | 3,2 m | 2,6 m |

Table 1. Maximum pane length (m) with one row of snow breakers

3. Maintenance of coated sheets

Inspect the roof sheets annually, preferably in spring (Table 2). Remove any debris on the roof, and when necessary wash the roof with a mildly alkaline detergent. If the coating is damaged or peeling, remove all the flaky or loose coating. In the area requiring repair, remove any rust, dirt and other impurities by brushing the surface lightly with a steel brush or by scraping. Use paints developed by paint factories in collaboration with steel manufacturers to repaint the damaged areas. Leading paint suppliers can provide additional information on such paints.








| CHECK | | ACTION |
|--|---|--|
| Condition of the paint, chalking, any colour alterations or cracking, particularly at overlaps. |  | Assess the situation and decide whether washing, cleaning, treating of the corroded edge or repainting is required. |
| Cleanliness of gutters. Any blockages will increase corrosion and may lead to water entering the structures. |  | Remove any leaves and needles from the gutters as they absorb water and possibly corrosive substances. |
| Cleanliness of roofing sheets. Tree leaves and needles piling up on the roof increase corrosion because they keep the roof permanently damp. |  | Clean the roofing sheets with water or a soft brush from the ridge towards the eaves. You may also use a mild detergent. |
| Any damage or indentations in the paint coat. |  | Decide whether repair painting, repainting or replacing the sheets is required, depending on the nature and extent of the damage. |
| Any loose fasteners or their parts, such as rivet mandrels or drilling chips have been left on the roof, as they may cause corrosion. |  | Remove any metal objects and chips and paint over any scratches. |
| Any faulty or erroneously attached fasteners on the roof, as they may cause leaks. |  | Replace any faulty fasteners. If the thread has become damaged or the screw cannot be tightened properly, replace the fastener with a thicker one. |
| Any corrosion on cut sheet edges. |  | Remove any loose paint and rust, treat the corroded area with primer and repaint it. |

Table 2

4. Basic instructions for installing Weckman roofing on an old roof:

The following matters must be taken into account in renovation projects:

If the old roof has suffered from ventilation problems or damp, it should be removed and new roofing sheets and sheathing should be installed. (For example, instructions for shaped sheets can be found starting from section 2.3). In addition, the municipal building inspection authorities should be contacted to find out whether a permit is required for changing the roof structure (i.e. changing roofing colour or material). If any old asbestos material is removed, the work must be carried out by a professional.

Weckman recommends that roofing sheets are always installed by one of Weckman's contractors, whose contact details are available on our website.

The old roofing sheets can be left underneath the new ones when:

- Sufficient ventilation is arranged at both the eaves and the ridge. The ridge of the old roofing must often be opened up and a new eaves structure constructed so that ventilation spaces of 20 mm are left throughout the eaves. Ventilation must also be arranged for chimneys and other inlets. When converting a flat roof into a pitched roof, the old bitumen roofing must be removed and new roofing sheets installed in accordance with the instructions (starting from section 2.1). In addition, all wooden structures under the old roofing must be inspected. If they are in a poor condition, it is safer to remove the old roofing material, including the old battens, and install a new roofing, studs and battens.

Old profiled sheet roof

1. Leave the old profiled sheets in place
2. Install upright studs that are the same height as the profiles (min. 32 mm) with nails over the rafters
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

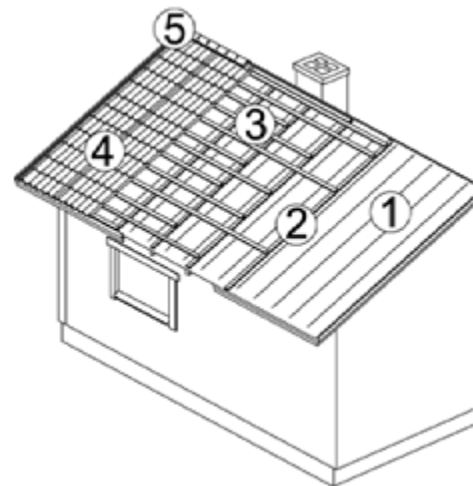


Figure 41. Renovation of an old metal profile roof

Old angle fillet roof

1. Leave the old angle fillet roofing in place
2. Install upright studs that are at least the same height as the angle fillet over the rafters with nails
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

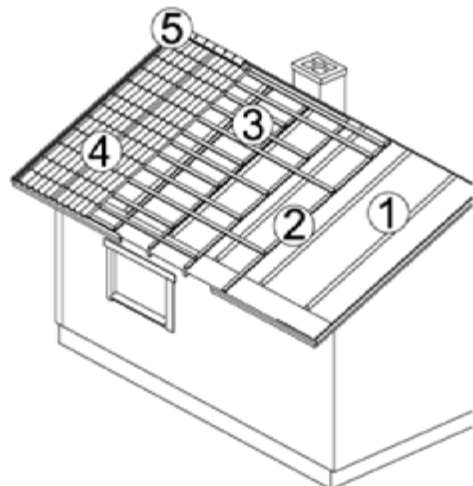


Figure 42. Renovation of an old angle fillet roof

Old smooth felt roof

1. Leave the old felt roofing in place
2. Install upright studs (min. 32 x 50 mm) over the rafters with nails
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

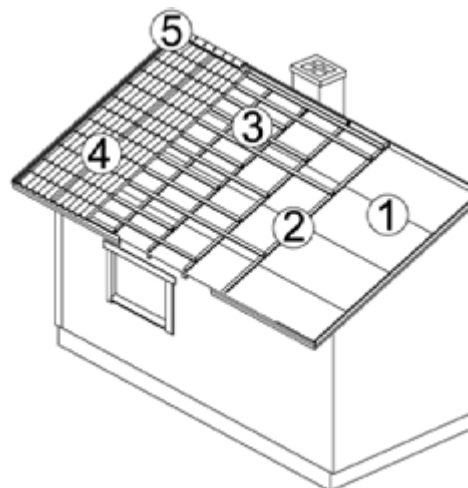


Figure 43. Renovating an old smooth felt roof

Old asbestos tile roof

1. Once the old asbestos sheets have been removed by an authorised asbestos removal company, install an underlay if the roof does not already include one.
2. Install upright studs (min. 32 x 50 mm) over the rafters with nails
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

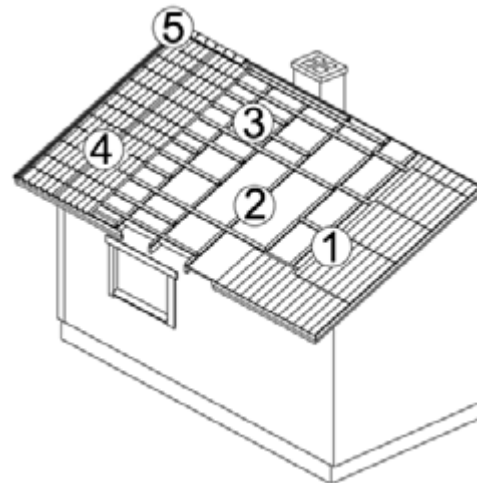


Figure 44. Renovation of an old asbestos roof

Old tile roof

1. After removing the old roofing, including the battens, install an underlay if the roof does not already include one
2. Install upright studs (min. 32 x 50 mm) over the rafters with nails
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

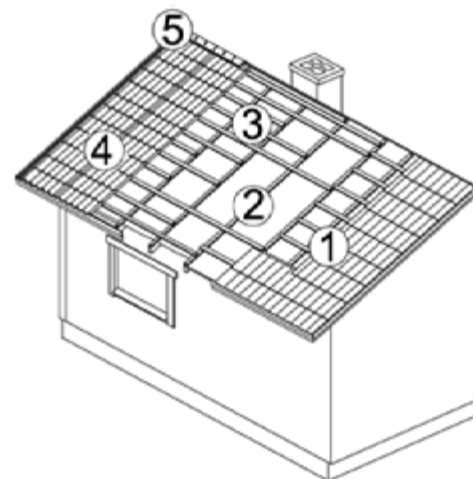


Figure 45. Renovation of an old seam metal roof

Old jointed metal roof

1. Leave the old roofing in place
2. Install upright studs the same height as the joints (min. 32 mm) over the rafters with nails
3. Install new battens with the spacing required by the roofing sheets
4. Fix the new sheets to the battens
5. Install seals and flashings

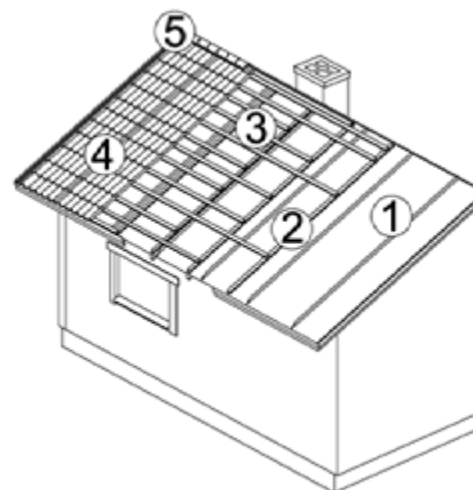


Figure 46. Renovating an old jointed metal roof

Weckman reduces the burden on the environment

NATURALLY
WECKMAN 

Weckman is committed to reducing its carbon footprint by defining the most environmentally friendly solutions possible for all processes in the product groups' supply chain. The steel used in Weckman's sheet products is 100% recyclable and up to 80% of our sheets are made of the most environmentally friendly steel. The 50-year lifespan of the Weckman steel halls and the recyclable steel

used as a material guarantee their eco-friendliness. Weckman's trailer range has been redesigned to be as environmentally friendly and sustainable as possible, including the manufacturing process. For Weckman, ecology is one of our values and our products last from generation to generation.

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Weckman Steel Oy is a family-owned privately operated company established in 1962. It specialises in manufacturing steel sheet products, steel halls and tractor trailers. Weckman products are manufactured in Finland in Vierumäki and Iisalmi, Germany in Zeven and Estonia in Viimsi.

Weckman has long traditions: the current owners are already the eighth generation to continue working with steel and iron. The professional skills acquired over the years, the best materials and expert service guarantee the well-known Weckman quality.
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We reserve the right to make changes.